



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
(Case No. 00-713-B1)

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In the Application of:

Chad A. Mirkin, et al.

Serial No.: 09/923,625

Filed: August 7, 2001

For: NANOPARTICLES HAVING  
OLIGONUCLEOTIDES ATTACHED  
THERETO AND USES THEREFOR

) Examiner: J. Riley

) Group Art Unit: 1637

) Confirmation No: 2286

Commissioner for Patents  
Washington, D.C. 20231

**SIXTH SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT**

Sir:

In order to comply with discretionary regulations 37 CFR §§1.97 and 1.98, attached hereto is Form PTO-1449, copies<sup>1</sup> of the documents listed thereon. These documents contain information which the Examiner may consider to be important in deciding whether to allow the present application to issue as a patent.

1. Merrill, et al., U.S. Patent No. 5,830,986, issued November 3, 1998.
2. Lough, et al., U.S. Patent No. 5,900,481, issued May 4, 1999.
3. Goldberg, et al., U.S. Patent No. 6,203,989, issued March 20, 2001
4. Bawendi, et al., U.S. Patent No. 6,251,303, issued June 26, 2001.

<sup>1</sup>To the extent that a document is listed and no copy of same is attached, then such document is not at the present time available to the undersigned or is available in the file of a parent application. If a listed document is not in the English language and an English translation is readily available, such translation is also attached; if translation is not attached it is not readily available to the undersigned. If a foreign language patent document is cited, and an English language equivalent is known to the undersigned, then such equivalent patent is also cited on the attached form along with the corresponding foreign language patent and a connecting arrow indicated therebetween; if no such English language equivalent is cited, then none is known to undersigned.

5. Abbott, et al., U.S. Patent No. 6,277,489, issued August 21, 2001.
6. Bawendi, et al., U.S. Patent No. 6,306,610, issued October 23, 2001
7. Mirkin, et al., U.S. Patent No. 6,361944, issued March 26, 2002.
8. Wagner, et al., U.S. Patent No. 6,365,418, issued April 02, 2002
9. Mirkin, et al., U.S. Patent No. 6,417,340, issued July 09, 2002
10. WO 93/25709 published 23 December 1993.
11. WO 98/04740 published 5 January 1998
12. WO 98/17317 published 30 April 1998
13. WO 99/60169 published 25 November 1999
14. WO 00/33079 published 8 June 2002
15. WO 01/00876 published 4 January 2001
16. WO 01/51665 published 19 July 2001
17. WO 01/73123 published 4 October 2001
18. WO 01/86301 published 15 November 2001
19. WO 02/04681 published 17 January 2002
20. WO 02/18643 published 7 March 2002
21. WO 02/36169 published 10 May 2002
22. WO 02/46483 published 13 June 2002
23. WO 02/46472 published 13 June 2002
24. Letsinger, R., et al., "Chemistry of Oligonucleotide-Gold Nanoparticle Conjugates," *Phosphorus, Sulfur and Silicon*, Volume 144, p. 359-362 (1999)
25. Letsinger, R., et al., "Use of a Steroid Cyclic Disulfide Anchor in Constructing Gold Nanoparticle—Oligonucleotide Conjugates," *Bioconjugate Chem*, p. 289-291 (2000)

26. Li Z., et al., "Multiple thiol-anchor capped DNA-gold nanoparticle conjugates," *Nucleic Acids Research*, Volume 30, p. 1558-1562 (2002)
27. Nuzzo R., et al., "Spontaneously Organized Molecular Assemblies. 3. Preparation and Properties of Solution Adsorbed Monolayers of Organic Disulfides on Gold Surfaces," *J. Am Chem. Soc.*, Volume 109, p. 2358-2368 (1987)
28. Otsuka, H, et al., "Quantitative and Reversible Lectin-Induced Association of Gold Nanoparticles Modified with  $\alpha$ -Lactosyl- $\omega$ -mercapto-poly(ethylene glycol)," *J. Am Chem. Soc.*, Volume 123, p. 8226-8230 (2001).
29. Wuelfing, P, et al, "Nanometer Gold Clusters Protected by Surface-Bound Monolayers of Thiolated Poly(ethylene glycol) Polymer Electrolyte," *J. Am. Chem. Soc.*, Volume 120, p. 12696-12697 (1998)

In accordance with MPEP Sections 609 and 707.05(b), it is requested that each document cited (including any cited in applicant's specification which is not repeated on the attached Form PTO-1449) be given thorough consideration and that it be cited of record in the prosecution history of the present application by initialing on Form PTO-1449. Such initialing is requested even if the Examiner does not consider a cited document to be sufficiently pertinent to use in a rejection, or otherwise does not consider it to be prior art for any reason, or even if the Examiner does not believe that the guidelines for citation have been fully complied with. This is requested so that each document becomes listed on the face of the patent issuing on the present application.

The present Disclosure Statement is being submitted in compliance with 37 CFR 1.56 insofar as an Examiner might consider any of the cited documents important in deciding whether to allow the application to issue as a patent, but the citation of each document is not to be construed as an admission that such document is necessarily relevant or prior art. No representation is intended that the cited documents represent the results of a complete search, and it is anticipated that the Examiner, in the normal course of examination, will make an independent search and will

determine the best prior art consistent with 37 CFR 1.104(a) and 1.106(b) and, in the course of each search, will review for relevance every document cited on the attached form even if not initialed.

Early and favorable consideration is earnestly solicited.

Dated: 1/23/03

McDonnell Boehnen Hulbert & Berghoff  
300 South Wacker Drive  
Chicago, Illinois 60606  
Telephone: (312) 913-0001  
Facsimile: (312) 913-0002

Respectfully submitted,

  
Emily Miao  
Registration No. 35,285

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Sheet 1 of 3

FORM PTO-1449  
(Rev. 2-32)U.S. Department of Commerce  
Patent and Trademark OfficeINFORMATION DISCLOSURE  
STATEMENT BY APPLICANT

(Use several sheets if necessary)

Atty. Docket No.	Serial No.
00-713-B1	09/923,625
<b>COPY</b>	
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Filing Date:	Group:
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## U.S. PATENT DOCUMENTS

Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
1.	5,830,986	11/03/98	Merrill, et al.	528	332	10/28/96
2.	5,900,481	05/04/99	Lough, et al.	536	55.3	11/06/96
3.	6,203,989	03/20/01	Goldberg, et al	435	6	03/25/99
4.	6,251,303	06/26/01	Bawendi, et al.	252	301.4R	09/18/98
5.	6,277,489	08/21/01	Abbott, et al.	428	403	12/04/98
6.	6,306,610	10/23/01	Bawendi, et al.	435	7.1	09/17/99
7.	6,361,944	03/26/02	Mirkin, et al.	435	6	06/25/99
8.	6,365,418	04/02/02	Wagner, et al.	436	518	05/18/00
9.	6,417,340	07/09/02	Mirkin, et al.	536	23.1	10/20/00

## FOREIGN PATENT DOCUMENTS

	Document Number	Date	Country	Class	Subclass	Translation Yes	Translation No
10.	WO 93/25709	23 December 1993	PCT				
11.	WO 98/04740	5 February 1998	PCT				
12.	WO 98/17317	30 April 1998	PCT				
13.	WO 99/60169	25 November 1999	PCT				
14.	WO 00/33079	8 June 2002	PCT				
15.	WO 01/00876	4 January 2001	PCT				

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EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if it is in conformance and not considered. Include copy of this form with next communication.

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	16.	WO 01/51665	19 July 2001	PCT			
	17.	WO 01/73123	4 October 2001	PCT			
	18.	WO 01/86301	15 November 2001	PCT			
	19.	WO 02/04681	17 January 2002	PCT			
	20.	WO 02/18643	7 March 2002	PCT			
	21.	WO 02/36169	10 May 2002	PCT			
	22.	WO 02/46483	13 June 2002	PCT			
	23.	WO 02/46472	13 June 2002	PCT			

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

24.	Letsinger, R., et al., "Chemistry of Oligonucleotide-Gold Nanoparticle Conjugates," <i>Phosphorus, Sulfur and Silicon</i> , Volume 144, p. 359-362 (1999)
25.	Letsinger, R., et al., "Use of a Steroid Cyclic Disulfide Anchor in Constructing Gold Nanoparticle—Oligonucleotide Conjugates," <i>Bioconjugate Chem</i> , p. 289-291 (2000)

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26.	Li Z., et al., "Multiple thiol-anchor capped DNA-gold nanoparticle conjugates," <i>Nucleic Acids Research</i> , Volume 30, p. 1558-1562 (2002)
27.	Nuzzo R., et al., "Spontaneously Organized Molecular Assemblies. 3. Preparation and Properties of Solution Adsorbed Monolayers of Organic Disulfides on Gold Surfaces," <i>J. Am Chem. Soc.</i> , Volume 109, p. 2358-2368 (1987)
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